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Investigation of the Utilization of Local Fuller Earth for Treatment of Vegetable oils

A dissertation Submitted in Partial Fulfillment of the Requirements for the degree of M.Sc., in Industrial Chemistry

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الأيـــــــة

قال تعالى :

(إنا خلقناه من طين لازب)

"١١ الصافات"

قال تعالى :

(أني أخلق لكم من الطين كهيئة الطير)

"٤٩ آل عمران"

DEDICATION

It is my pleasure and great honor to dedicate this humble research with all amiability and respect to:

Who is suffering day after day, and bears pressures, troubles and obstacles.

Who fought all difficulties, and shines our life.

(Dear father)

To whom treats our hearts, who draws the smiles in our faces and the happiness on our life, bears starving to feed us and cold to warm us.

(Great mother)

The pride supports kindness and real love, for whom we can't live without them, (Lovely sisters and dear brothers)

To all who taught, support and share win us everything they know.

Acknowledgement

All praises are due to ALLA the creator of heavens and earth and whatever within them, who the one taught mankind to use pen and made knowledge and science in highest degree.

Firstly will start with simple expressive words and phrases full of feeling to cover whole universe by beauty and happiness to my beloved parents.

Then all thanks to our staff for what they have given us of science and knowledge,

Also thanks and appreciation to:

International university of Africa and very special thanks to,

Dr. Salma Omer Alhag Ali

"For making this project success by her efforts, opinions and time"

And thanks to all who contributed to reach this humble step,

Those who supported and gave me their thoughts, efforts and time.

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ABSTRACT

The properties of fuller earth had made it valuable in many industrial applications. In general, chemically activated betonies and other activations of betonies may be used as adsorbents in the bleaching of edible oils and other materials.

In this research, crude fuller earth samples obtained from the Blue Nile beach near the Ministry of Energy and Mining was treated by milling, washing, purification and drying. The pretreated samples were then activated with 98% concentrated sulfuric acid and then utilized to bleach a peanut oil. It was found that the efficiency of bleaching was at 56.75% as compared with that of a non-activated fuller earth with 54.05% bleaching efficiency. Based on this result, it was found that local fuller earth can be utilized for bleaching vegetable oils when chemically activated.

ملخص البحث

ان خصائص الارض جعلت للطين قيمة في العديد من التطبيقات الصناعية بصورة عامة، فإن التنشيط الكميائي للبنتونيت او التنشيط بطرق اخرى للبنتونيت يمكن استخدامه كمادة ماصه في ازالة اللون من الزيوت النباتية والمعدنية وغيرها من الزيوت(التبيض).

في هذا البحث تم الحصول على العينات من شاطئى النيل الازرق بالقرب من وزارة الطاقة والتعدين وتمت معالجة الخام بالطحن والغسيل وكذلك تنقيته وتجفيفه.

تم تنشيط العينات بتركيز ٩٨% من حمض الكبريتيك ثم استخدمت في تبيض زيت الفول السوداني.

فقد وجد ان كفاءة التبيض ٥٦.٧٥% مقارنه مع عينة غير منشطة ٥٤.٠٥% كفاءة تبيضها.

استنادا الى هذه النتيجة تبين ات الطين المحلي يمكن استخدامه لتبيض الزيوت النباتية والمعدنية بعد تنشيطها.